ABSTRACT

Bone replacement material with orthophosphate

[00068] The present invention relates to a material with orthophosphate and having a high solubility which can be used as a bioactive bone replacement material and as a substrate material in biotechnology. According to ^{31}P-NMR measurements, the new material comprises Q_0-groups of orthophosphate and Q_1-groups of diphosphate, the orthophosphates or Q_0-groups making up 65 to 99.9% by weight relative to the total phosphorus content of the finished material and the diphosphates or Q_1-groups making up 0.1 to 35% by weight relative to the total phosphorus content of the finished material, and wherein according to X-ray diffractometric measurements and relative to the total weight of the finished material, 35 to 99.9% by weight of a main crystal phase consisting of $Ca_{10}Na(PO_4)_7$, $Ca_{10}K(PO_4)_7$, mixtures thereof or mixed crystals according to the general formula $Ca_{10}K_xNa_{1-x}(PO_4)_7$, where x = 0 to 1, is contained in the bone replacement material and 0.1 to 25% by weight of a substance selected from the group consisting of $Na_2CaP_2O_7$, $K_2CaP_2O_7$, $Ca_2P_2O_7$ and mixtures thereof is contained as a secondary crystal phase, and the X-ray amorphous phases contained besides the main crystal phase jointly make up 0.1 to 65% by weight.